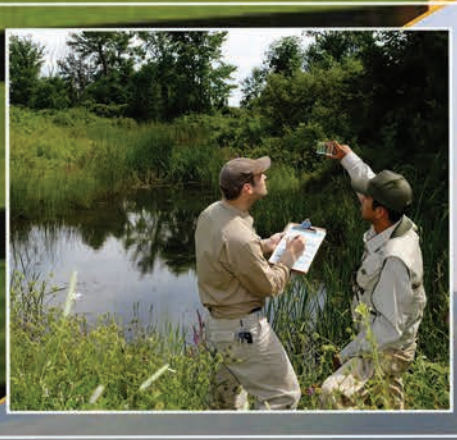
California

United States Department of Agriculture

USDA

Your Farm
and
Agricultural Water Quality



Natural Resources Conservation Service

"Helping People Help the Land"

NRCS

The USDA Natural Resourses Conservation Service (NRCS) and Our Role In Water Quality

As the leading Federal agency for assisting in restoring watershed health on private land, NRCS provides technical and financial assistance to producers who implement conservation practices and management strategies that benefit water quality and improve water management. The science behind the implementation of these conservation practices and management strategies is developed and supported by the NRCS Science and Technology Divisions, National Technical Support Centers, the Water and Climate Center, and the Wetlands Team. Technical specialists are continually developing new tools to improve current conservation practice technology, improve models to track nutrients, and improve irrigation efficiency. Agricultural producers using these tools and practices can more efficiently use water, increase water storage, and protect water quality by minimizing the potential loss of sediment and nutrients from their operations.

How To Use This Booklet

As farmers increasingly need solutions to preserve and improve water quality in conjunction with their farm management practices, NRCS conservation planning and conservation practices can be helpful in accomplishing this goal.

Use this booklet to self-assess your property and your particular situation, to determine any specific water quality concerns, to begin seeing what conservation practices may work for you, and to begin collecting information that will help develop a conservation plan.

This booklet contains:

- Background on water quality and conservation practices in California
- Information on the water quality parameters most associated with agriculture in California
- A list and description of the most useful conservation practices for water quality improvements relating to these parameters
- Information on the NRCS Water Quality Index tool for self-assessment and evaluation
- A list of potential or actual items from the Irrigated Lands Regulatory Program and how NRCS may be able to assist
- A form where you can enter information about your property that will help begin to develop a self-assessment or conservation plan

Water Quality Practices for Irrigated Agriculture in California

Background

The 2000 National Water Quality Inventory reported that nonpoint source pollution from agricultural runoff is the leading source of impacts on the nation's rivers and lakes. As water moves, over or through the soil, it picks up and carries natural and human-made pollutants, transporting them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. Some of the agricultural activities that lead to negative water quality impacts are tilling too often or at the wrong time and improper, excessive, or poorly timed application of pesticides, irrigation water, and fertilizer.

Pollutants that result from farming and ranching include sediment, nutrients, pathogens, pesticides, metals, and salts.

Impacts from agricultural activities on surface water and ground water can be minimized by using conservation practices that are adapted on a site-by-site basis. Many practices designed to reduce pollution also increase productivity and save farmers and ranchers money in the long run.

Across California, Regional Water Quality Boards are implementing the Irrigated Lands Regulatory Program (ILRP) that require landowners to manage their irrigated cropland and stormwater discharges to surface and ground waters. While each Regional Board's regulations are based on their particular region's climate, terrain, agricultural related impairments to water quality, and crops, there are similarities in what is expected of all growers in the future. These expectations determine what is necessary for California growers to meet any new requirements.

Examples of Regional Board's requirements include: conducting self- assessments, continued monitoring (possibly as a joint effort through existing coalitions); tiered levels of regulation; on-farm water quality management plans or other specific plans; a new emphasis on stormwater runoff; and the implementation of conservation practices for both surface water and ground water quality improvement.

The ***United States Department of Agriculture's Natural Resources Conservation Service***, local Resource Conservation Districts (RCDs), California State Water Resources Control Board, University of California Cooperative Extension agents, County Agricultural Commissioners, water quality coalitions, and other agricultural partners have the expertise to assist growers in achieving water quality improvements around the state and are working together as a team to find realistic solutions.

Conservation Planning

The NRCS provides voluntary conservation planning and technical assistance to clients (individuals, groups, and units of government). These clients help develop and implement their conservation plans to protect, conserve, and enhance natural resources (soil, water, air, plants, and animals) and energy. During the course of developing a conservation plan, an inventory of the resource conditions on the farm is produced, including the soil types and characteristics, the slope and slope lengths of each field, crop types and rotations, and other significant items necessary for maintaining soil health, water quality, and farm productivity.

(Conservation Planning continued)

An NRCS assisted conservation plan provides a professional analysis of a landowner's natural resources and helps owners/managers craft alternatives based on their goals and budget. The alternatives can include engineering, agronomic, soils and biological solutions to address problems such as erosion, polluted water, dust, pesticide and nutrient runoff, and more. Plans can also be developed to further enhance already-healthy land or to augment land for habitat beneficial to fish and wildlife.

Conservation Practices

Conservation practices are specific structural, managerial, or cultural treatments of natural resources commonly used to meet specific needs in planning and maintaining the quality and quantity of water, soil, air, plant, and animal resources. NRCS conservation practices have decades of rigorous standards and specifications proving their effectiveness for site specific solutions. These standards and specifications can be found on the electronic ***Field Office Technical Guide*** at the California NRCS web site:
http://www.ca.nrcs.usda. gov.

NRCS conservation practices, working singly or in combination, can reduce negative impacts of erosion, sedimentation, nutrients, pesticides, stormwater runoff, increased temperatures, and pathogens while improving your soil and water resources and habitat values on your property.

Conservation practices ranking high specifically for the water quality resource concerns are described in this booklet.

Water Quality Effects

Effects of chronic pollution on natural resources are more subtle and gradual than those associated with an accidental spill. In most cases, the loss of fish or wildlife occurs over a long period of time as a result of a decline in water quality. The end result is much more serious since the ability of water to support life may be virtually destroyed.

The quality of water affects the economic well being, health, and recreational opportunities available to the public. To protect the beneficial uses of the water, water quality standards have been established. These standards specify concentrations of constituents which, if not exceeded, are expected to result in continued beneficial uses of that water.

For water quality problems to exist, the water must be impaired for a designated beneficial use. This indicates that a standard has not been met and there has been an "exceedance" of at least one constituent. The water is then considered contaminated for that constituent. Water pollution is defined as "contamination or alteration of the physical, chemical, or biological properties of the water…which will or can reasonably be expected to create a public nuisance or render such water harmful, detrimental or injurious to public health, safety, or welfare, or other legitimate beneficial uses".

The most common causes of water quality degradation are sediment, nutrients, and pesticides. Pathogens, high temperatures, bacteria, stormwater runoff and naturally occurring metals also cause problems.

SEDIMENT

Sediment deposition can have both beneficial and detrimental effects on a water system. Nutrients and soil particles vital to a highly productive ecosystem, such as an estuary, can be replenished annually by soils eroded from the upper watershed. Excessive erosion and sedimentation, however, can cause physical damage to the aquatic habitat, increase maintenance of canals and ditches, decrease the carrying capacity of water bodies and result in an excessive amount of phosphorus in the water system as almost all the phosphorus lost from agricultural lands is associated with sediment. Fish and wildlife can be impacted by reducing the visibility of water and reducing food production, impairing respiration, covering eggs, and impairing reproduction.

Sediment may also cause damage through chemical means, as some pesticides attach to fine-grained soil particles and, upon reaching waterways, may settle out and become bedload sediment. Any adsorbed pollutants, such as pesticides, will be taken up by the benthic organisms and find their way into the food chain. Bedload sediment can also change stream habitat through scour, abrasion, and deposition.

Do you notice erosion or sediment on your property from:

Irrigation	☐ yes	☐ no
Stormwater	☐ yes	☐ no
Pasture, Range	☐ yes	☐ no

If you answered yes, consider using NRCS practices *Irrigation Water Management* (449), *Conservation Cover* (327), *Cover Crop* (340), *PAM* (450), *Critical Area Planting* (342), *Residue and Tillage Management* (329, 344, 345, 346) and others.

Do you notice streambank erosion or murky water in on-farm or adjacent ditches or streams?

Sides of streams or ditches are eroding.
☐ yes ☐ no

Water in ditches or streams or other water bodies is muddy or looks like chocolate milk.
☐ yes ☐ no

Water in ditches or streams may be clear, but silt has settled on the bottom.
☐ yes ☐ no

If you answered yes, consider using NRCS practices *Streambank Protection* (580), *Fence* (382), *Filter Strip* (393) and others.

NUTRIENTS

Nitrogen and phosphorus are the major nutrients from agricultural land that can degrade water quality. While all plants require nutrients for growth, excessive nutrients introduced into surface water bodies can dramatically increase the presence of algae and other aquatic vegetation.
This increased growth can:

- *increase the level of turbidity and color reducing fish populations*
- *increase treatment costs by municipalities and industries*
- *decay, thereby creating unpleasant odors*
- *decrease the dissolved oxygen supply available for aquatic species*
- *interfere with recreational activities such as swimming and boating.*

NITROGEN AND NITRATES

There are several forms of nitrogen that can contribute to water quality problems. Ammonium, another form of nitrogen, becomes adsorbed by the soil and may be carried off with eroding sediment. Nitrates in drinking water are potentially life threatening, especially to newborn infants. Dissolved ammonia at elevated concentrations can be toxic to fish. Nitrogen compounds contribute in increasing the amount of plant matter in a water body, leading to eutrophication.

Agricultural nitrogen is added to the soil primarily by applying commercial fertilizers or manure.

PHOSPHORUS AND PHOSPHATES

Commercial fertilizers and manure are added to soil to increase the level of available phosphorus for promoting plant growth. Phosphorus generally becomes adsorbed to the soil. Runoff and erosion from irrigation and storm events can carry unutilized phosphorus to nearby water bodies. This sediment attached phosphorus may settle on the bottom of a lake or stream and be released later under anaerobic conditions, creating water quality problems. Phosphorus is not toxic to aquatic organisms, but can contribute to eutrophication of water bodies.

Is there a noticeable greenish color in your ditches/streams/ponds?
☐ Yes ☐ No

Do you notice algae, plants or mosses in your waterways?
☐ Yes ☐ No

If you answered yes, you might consider *Cover Crop* (340), *Vegetated Drainage Management* (554), *Filter Strip* (393), *Irrigation Water Management* (449), *Nutrient Management* (590), *Riparian Buffer* (391), and others.

Have any wells on your property tested for high concentrations of nitrates?
☐ Yes ☐ No

If you answered yes, you might consider *Agrichemical Handling Facility* (309), *Nutrient Management* (590), *Well Decommissioning* (351), and others.

PESTICIDES

Pesticides have documented benefits for use in agriculture, but may also impair surface and ground water quality. Pesticides can be lost from agricultural fields by leaching and removal in irrigation and storm runoff water. The effect of a pesticide depends on its individual properties; the amount, method, and timing of its application; and the intensity of the storm event or amount of irrigation following application.

Pesticides may harm the environment by eliminating or reducing populations of desirable organisms. The pesticide or its degradation products may persist and accumulate in aquatic systems, impacting ecosystem health by inhibiting species reproduction, altering physical aspects of species, and accumulating in the food chain. The longer it persists in the soil, the greater the opportunity for it to be transported from the crop area to receiving waters or groundwater.

Herbicides can destroy food sources for higher organisms and increase the amount of decaying plant matter leading to a reduction of dissolved oxygen. Aquatic species may be killed or altered or the food chain may be disrupted. Land species may also be exposed, resulting in death or deformities. Pesticides reaching ground water may contaminate drinking wells, rendering them unsuitable for domestic use.

Are the costs and risks of pesticides significant to you?
☐ Yes ☐ no

Do you notice fish kills or erratic behavior of aquatic species in nearby streams?
☐ Yes ☐ no

If so, you might consider *Vegetated Drainage Management* (554), *Cover Crop* (340), *Filter Strip* (393), *Integrated Pest Management* (595), *Irrigation Water Management* (449), *Riparian Buffer* (391), and others.

Have any nearby tested wells showed positive results for pesticides?
☐ Yes ☐ no

If so, you might consider *Agrichemical Handling Facility* (309), *Integrated Pest Management* (595), *Well Decommissioning* (351), and others.

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PATHOGENS

Pathogens in water may cause multiple concerns - from illnesses in humans from ingestion or direct contact through swimming to outbreaks of illness or death from contaminated crops. Sources are as varied as livestock and domestic animals, septic systems, wildlife and agricultural and urban runoff.

Many things affect the levels and behavior of pathogens in the environment: weather, stream flows, water temperature, distance form pollution sources, wildlife activity, and rainfall.

Has water on your property ever tested positive for bacteria or other pathogens?

☐ Yes ☐ No

If you answered yes, consider using NRCS practices *Access Control* (472), *Conservation Cover* (327), *Constructed Wetland* (656), *Fence* (382), *Filter Strip* (393), and others.

TEMPERATURE

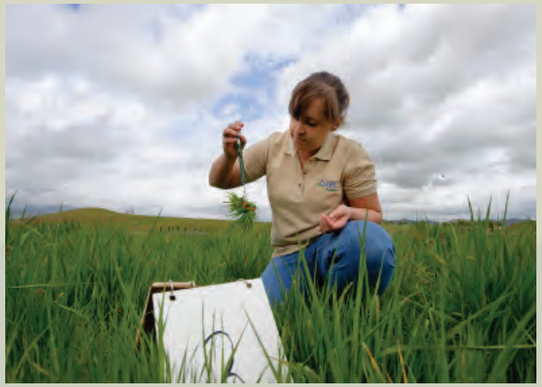
Stream, pond, and lake temperatures can affect the lifecycles of aquatic biological communities. Increased temperature can negatively impact growth, migration, spawning, egg incubation, and food sources. The state of California has water quality objectives to ensure proper temperatures are maintained based on the designated beneficial uses.

Runoff from irrigated agriculture can raise stream temperatures to lethal ranges for aquatic life. Streams without vegetative canopies or banks add to the problem.

Do water bodies on your property show increased temperatures?

☐ Yes ☐ No

If you answered yes, consider using NRCS practices *Filter Strip* (393), *Irrigation Water Management* (449), *Riparian Buffers and Cover* (391 or 390), *Streambank Improvement* (385), and others.



GROUNDWATER

Recent studies show that the quality of groundwater in California's agricultural regions has degraded, threatening the drinking water quality of privite and municipal wells, mainly from nitrates used in fertilizers and found in animal waste. Many people in the state rely on groundwater as their drinking water source so millions of people may be impacted by contaminated water sources. High nitrate levels have been linked to cancer and reproductive disorders and can be lethal to infants.

Nitrate and pesticide levels in groundwater can be caused by over-irrigating, over application of pesticides, or a lack of knowledge of soil types and the proper management methods needed to reduce contributions to groundwater.

Has your, or your community's, water tested positive for nitrates or pesticides?

☐ Yes ☐ No

If you answered yes, then consider using NRCS practices *Irrigation Water Management (449), Agrichemical Handling Facility* (309), *Nutrient Management* (590), *Integrated Pesticide Management* (595), *Well Decommissioning* (351), and others.

STORMWATER RUNOFF

Stormwater runoff from agricultural land is included as a concern in state water quality regulations. Pesticides used prior to rainfall events or bare ground susceptible to erosion allow stormwater runoff to carry contaminants to nearby streams and other waterways.

The effects of storm runoff containing sediment, nutrients, bacteria, or pesticides is the same as irrigated runoff containing these contaminants.

Do you notice erosion and sedimentation occurring on your property during storm events?

☐ Yes ☐ No

Do you use pesticides during the fall/winter months?

☐ Yes ☐ No

If you answered yes, please consider using *Conservation Cover* (327), *Drainage Management* (554), *Filter Strip* (393), *Integrated Pest Management* (595), *Nutrient Management* (590), *Residue and Tillage Management* (329, 344, 345, 346), and others.

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CONSERVATION PRACTICES FOR WATER QUALITY IMPROVEMENTS

	sediment	nutrients	pesticides	pathogens	temperature	groundwater	stormwater runoff
 **ACCESS CONTROL** (472) Excluding animals, people, or vehicles from an area to protect, maintain, or improve the quantity and quality of the natural resources in an area.	✓	✓	✓	✓	✓		
AGRICHEMICAL HANDLING FACILITY (309) Structure with an impervious surface that provides an environmentally safe area for storing, mixing, loading, and cleaning up on-farm agrichemicals and equipment. 	✓	✓	✓			✓	
 **ANIONIC POLYACRYLAMIDE APPLICATION (PAM)** (450) Application of water-soluble Anionic Polyacrylamide to reduce irrigation induced soil erosion and sedimentation and improve water quality.	✓	✓	✓				
CONSERVATION COVER (327) Establish and maintain perennial vegetative cover to protect soil and water resources on land retired from agricultural production or other lands needing permanent protective cover. 	✓	✓	✓	✓			✓
 **CONSTRUCTED WETLAND** (656) Artificial ecosystem consisting of a shallow basin established with hydrophytic vegetation that is constructed to intersect and treat the flow of a waste stream or contaminated runoff. Used to treat waste water and contaminated runoff from agricultural facilities or for improving the quality of storm water or other water flows lacking specific water quality discharge criteria.	✓	✓	✓	✓		✓	

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CONSERVATION PRACTICES FOR WATER QUALITY IMPROVEMENTS

	sediment	nutrients	pesticides	pathogens	temperature	ground water	stormwater runoff
 **COVER CROP** (340) Growing a crop of grass, small grain, or legumes on cropland, orchards, and vineyards. Used to control erosion, add fertility and organic material to the soil, improve soil tilth, and increase infiltration and aeration of the soil.	✓	✓	✓			✓	✓
CRITICAL AREA PLANTING (342) Planting vegetation on critically eroding areas that require extraordinary treatment to protect land and water quality. 	✓	✓	✓	✓	✓	✓	✓
 **DRAINAGE DITCH VEGETATION** Reducing nutrients, pesticides, sediment in runoff through the use of vegetated drainage ditches.	✓	✓	✓	✓	✓	✓	✓
FENCE (382) A constructed barrier to livestock, wildlife, or people. Applied to any area where livestock and/or wildlife control is needed or where access to people is to be regulated to minimize erosion and keep nutrients and other contaminants out of water bodies. 	✓	✓	✓	✓	✓	✓	✓
 **FIELD BORDER** (386) Strips of permanent vegetation established at the edge or around the perimeter of a field that reduce erosion and protect water quality.	✓	✓	✓	✓		✓	✓

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CONSERVATION PRACTICES FOR WATER QUALITY IMPROVEMENTS

	sediment	nutrients	pesticides	pathogens	temperature	groundwater	stormwater runoff
 **FILTER STRIP** *(393)* Area of vegetation established for the purpose of removing sediment, organic material, and other pollutants from runoff and wastewater.	✓	✓	✓	✓	✓		✓
INTEGRATED PEST MANAGEMENT *(595)* Using a combination of pest prevention, pest avoidance, pest monitoring, and pest suppresion strategies to manage weeds, insects, and diseases. 			✓			✓	✓
 **IRRIGATION LAND LEVELING** *(464)* Reshaping the surface of irrigated land to planned grades to permit uniform and efficient application of surface irrigation water without significant erosion, loss of water quality, or damage to soil and crops from waterlogging.	✓	✓	✓	✓			
IRRIGATION SYSTEM - MICROIRRIGATION *(441)* Also known as drip or trickle irrigation, is used for distribution of water directly to the plant root zone by means of surface or subsurface applicators to efficiently and uniformly apply irrigation water and/or chemicals directly to the plant root zone. 	✓	✓	✓	✓			
 **IRRIGATION SYSTEM-SPRINKLER** *(442)* System in which all necessary equipment and facilities are installed for efficiently applying water by means of nozzles operated under pressure for efficient and uniform application of irrigation water to maintain adequate moisture for plant growth and production without causing excessive water loss, erosion, or water quality impairment.	✓	✓	✓				

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CONSERVATION PRACTICES FOR WATER QUALITY IMPROVEMENTS

	sediment	nutrients	pesticides	pathogens	temperature	groundwater	stormwater runoff
IRRIGATION SYSTEM - TAILWATER RECOVERY (447) Facilities utilized for the collection, storage, and transportation of irrigation tailwater for reuse to conserve irrigation water supplies and reduce transport of contaminants offsite.	✓	✓	✓				
IRRIGATION WATER MANAGEMENT (449) Determining and controlling the rate, amount, and timing of irrigation water in a planned and efficient manner to minimize soil erosion, minimize leaching of plant nutrients, and protect both the quantity and quality of water resources.	✓	✓	✓	✓	✓		
NUTRIENT MANAGEMENT (590) Managing the source amount, placement, and timing of plant nutrients to obtain optimum yields and minimize the risk of surface and ground water pollution.		✓				✓	✓
RESIDUE MANAGEMENT (329, 345, 346) Leaving crop residue on the soil surface to reduce erosion, conserve moisture, and maintain or improve soil health.	✓	✓	✓	✓			✓
RIPARIAN FOREST BUFFER (391) Area of trees and/or shrubs located adjacent to a body of water extending outward from the water body that are designed to create shade, and act as a buffer to filter out sediment, organic material, fertilizer, pesticides, and other pollutants that may adversely impact the water bodies.	✓	✓	✓	✓	✓		✓

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CONSERVATION PRACTICES FOR WATER QUALITY IMPROVEMENTS

	sediment	nutrients	pesticides	pathogens	temperature	groundwater	stormwater runoff
 ***RIPARIAN HERBACEOUS COVER*** (390) Establishment and maintenance of grasses, grass-like plants, and forbs that are managed in the transitional zone between terrestrial and aquatic habitats that serve to reduce low quality runoff and stabilize streambanks and shorelines.	✓	✓	✓	✓	✓		✓
SEDIMENT BASIN (350) Constructed basin designed to collect and store water-borne debris or sediment that serves to prevent excessive down-slope deposition and reduce or abate damage to natural resources from pollution or deposition of sediment. 	✓	✓	✓	✓			✓
 ***STREAMBANK AND SHORELINE PROTECTION*** (580) Stabilization and protection of streambanks, constructed channels, and shorelines of lakes, reservoirs, or estuaries, reducing the offsite or downstream effects of sediment resulting from bank erosion.	✓	✓	✓	✓	✓		✓
STREAM HABITAT IMPROVEMENT AND MANAGEMENT (385) Maintenance, improvement, and restoration of physical, chemical, and biological functions of a stream to help maintain water quality. 	✓	✓	✓	✓	✓		✓
 ***TREE/SHRUB ESTABLISHMENT*** (612) Establishment or natural regeneration of woody plants by planting seedlings, cuttings, direct seeding resulting in erosion control and acting as a chemical/nutrient sink for water quality improvements.	✓	✓	✓	✓			✓

Water Quality Index - An Assessment for Runoff Water from Agricultural Fields

The NRCS Water Quality Index (WQI) is a science based assessment tool to evaluate the potential for agricultural runoff to contain nutrients, pesticides, or sediment. The WQI uses the following factors to characterize the relative quality of runoff from a field:

1. Field characteristics: Field characteristics play an important role in runoff generation and transport. The higher the slope, the more susceptible it is to generate runoff and soil erosion. The slope interacts with the soil's runoff potential (hydrologic group), natural erodibility (k factor), soil organic matter content, rainfall and vegetative cover.

2. Nutrient management factors: Nutrient management components that affect runoff water quality from a field include: rate, form, timing and method of application of fertilizers. Many landowners apply fertilizers based on State Land Grant University (LGU) recommendations. These recommendations balance crop production with environmental concerns.

3. Tillage management factors: There is a direct correlation between soil tillage and soil erosion. The more soil is tilled, the more susceptible it is to erosion. The WQI can be evaluated for tillage by farm management practices or use of the Soil Tillage Intensity Rating (STIR) tool used by NRCS.

4. Pest management factors: Integrated Pest Management (IPM) approaches incorporate crop rotations, scouting, cultural practices, crop selection, and their practices to prevent pest problems with minimum risk to the environment.

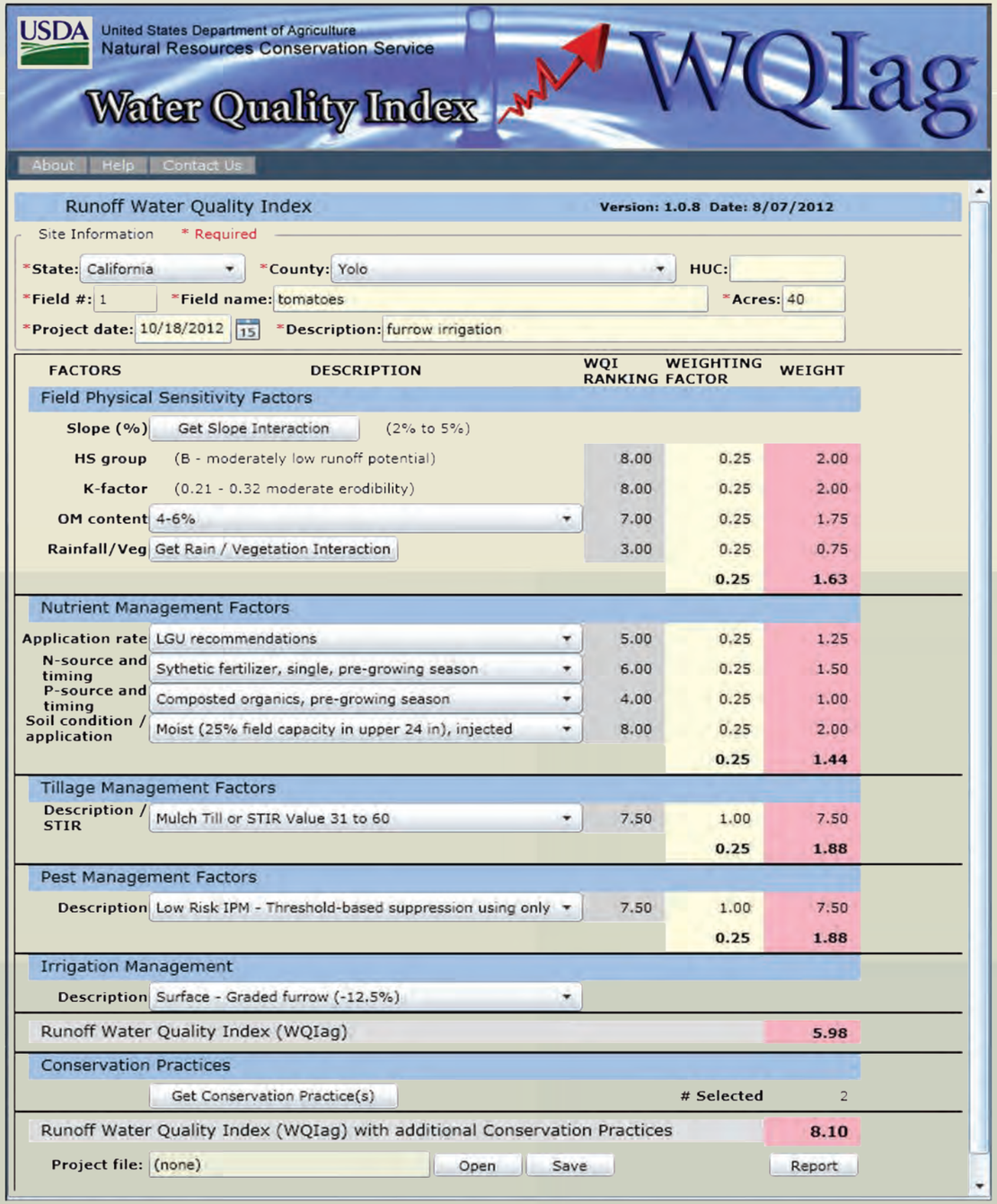
5. Irrigation management: Irrigation method can influence runoff and its quality. Drip irrigation may have significantly less runoff than furrow irrigation and may see a reduced amount of sediment in the runoff as a result. The irrigation component of the WQI provides values for selected irrigation methods.

Next, the WQI provides a drop down box to select up to three NRCS conservation practices to determine the potential effect on runoff quality. Finally, the impacts of changing nutrient, tillage, or pesticide management may be adjusted for further analysis and decision making.

An example assessment is shown on the next page. The results of this sample show a WQI ranking of 5.98. This is a good result, but adding a filter strip and sediment basin improve the ranking to a score of 8.10 predicting improved quality of the runoff.

The online version of the WQI may be located at: http://199.133.175.81/WQIndex/.

Water Quality Index Assessment (Sample Form)



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Water Quality Index WQIag

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Runoff Water Quality Index — Version: 1.0.8 Date: 8/07/2012

Site Information * Required

*State: California *County: Yolo HUC:
*Field #: 1 *Field name: tomatoes *Acres: 40
*Project date: 10/18/2012 *Description: furrow irrigation

FACTORS	DESCRIPTION	WQI RANKING	WEIGHTING FACTOR	WEIGHT
Field Physical Sensitivity Factors				
Slope (%)	Get Slope Interaction (2% to 5%)			
HS group	(B - moderately low runoff potential)	8.00	0.25	2.00
K-factor	(0.21 - 0.32 moderate erodibility)	8.00	0.25	2.00
OM content	4-6%	7.00	0.25	1.75
Rainfall/Veg	Get Rain / Vegetation Interaction	3.00	0.25	0.75
			0.25	**1.63**
Nutrient Management Factors				
Application rate	LGU recommendations	5.00	0.25	1.25
N-source and timing	Sythetic fertilizer, single, pre-growing season	6.00	0.25	1.50
P-source and timing	Composted organics, pre-growing season	4.00	0.25	1.00
Soil condition / application	Moist (25% field capacity in upper 24 in), injected	8.00	0.25	2.00
			0.25	**1.44**
Tillage Management Factors				
Description / STIR	Mulch Till or STIR Value 31 to 60	7.50	1.00	7.50
			0.25	**1.88**
Pest Management Factors				
Description	Low Risk IPM - Threshold-based suppression using only	7.50	1.00	7.50
			0.25	**1.88**
Irrigation Management				
Description	Surface - Graded furrow (-12.5%)			
Runoff Water Quality Index (WQIag)				**5.98**
Conservation Practices				
Get Conservation Practice(s)			# Selected	2
Runoff Water Quality Index (WQIag) with additional Conservation Practices				**8.10**

Project file: (none) Open Save Report

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California State Water Quality Regulations

Depending on where you farm, your Regional Board may require specific water quality regulations. The NRCS is not a regulatory agency, and operates purely on a voluntary basis, but NRCS may be of assistance in meeting some, or all, of these regulatory needs.

If your Regional Board mandates:

- ***A Farm Water Quality Management Plan:***
  - See your local NRCS office, Resource Conservation District (RCD), or other local entity for a conservation plan or other plan that could assist you

- ***A Nutrient Management Plan:***
  - Consider NRCS conservation practice Nutrient Management (590) or the conservation practices in this booklet that help reduce nutrients in water

- ***A Buffer Plan:***
  - See your local NRCS office, Resource Conservation District (RCD), or other local entity for a conservation plan or other plan that could assist you
  - Consider the NRCS conservation practices in this booklet that may help your particular situation

- ***A self-assessment:***
  - Take a look at the NRCS Water Quality Index online or stop by your local office for assistance
  - Talk to your local NRCS office about other assessment tools available

- ***A Groundwater Management Plan:***
  - Consider the conservation practices in this booklet that help reduce nutrients and pesticides in groundwater
  - Talk to your local NRCS office about Well Decommissioning (351) if you need assistance sealing and closing an inactive, abandoned, or unusable water well

- ***You are responsible for the quality of runoff from your property from rainfall/stormwater:***
  - See your local NRCS office, Resource Conservation District (RCD), or other local entity for a conservation plan or other plan that could assist you
  - Consider the NRCS conservation practices in this booklet that may help you improve the quality of your runoff

- ***You are responsible for the quality of irrigation runoff from your property:***
  - See your local NRCS office, Resource Conservation District (RCD), or other local entity for a conservation plan or other plan that could assist you
  - Ask about NRCS conservation practice Irrigation Water Management (449)
  - Consider the NRCS conservation practices in this booklet that may help you improve the amount and quality of your runoff

You are invited to visit your local NRCS/RCD office to discuss conservation planning and practices.
You may find this form useful to collect and condense the information needed for working towards the development of a conservation plan. A map of the property with fields, drainages, nearby water bodies, and other pertinent information clearly marked is also helpful.

PRODUCER NAME: _____

PRODUCER CONTACT INFORMATION:

HOME PHONE: _____

CELL PHONE: _____

EMAIL ADDRESS: _____

PROPERTY NAME: _____

LOCATION OF PROPERTY: _____

PROPERTY ACREAGE: _____

CROPS GROWN OR TYPICAL CROP ROTATION: _____

_____

_____

TYPE OF IRRIGATION SYSTEMS: _____

_____

_____

LOCATION AND NAME OF ANY WATER BODIES RUNNING THROUGH, OR ADJACENT TO, PROPERTY (INCLUDE APPROXIMATE DISTANCE FROM FIELD TO WATER BODY): _____

_____

_____

_____

CONSERVATION PRACTICES ALREADY IMPLEMENTED FOR EACH FIELD: _____

_____

_____

ANY CONCERNS THAT NRCS COULD HELP ADDRESS THROUGH CONSERVATION PLANNING OR PRACTICE IMPLEMENTATION: _____

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For more information, contact your local NRCS office or visit the web at: http://www.ca.nrcs.usda.gov

United States Department of Agriculture

Non-Discrimination Policy

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers, employees and applicants for employment on the bases of race, color, national origin, age, disability, sex, gender identity, religion, reprisal, and where applicable, political beliefs, marital status, familial or parental status, sexual orientation, or all or part of an individual's income is derived from any public assistance program, or protected genetic information in employment or in any program or activity conducted or funded by the Department. (Not all prohibited bases apply to all programs and/or employment activities.)

To File an Employment Compliant

If you wish to file an employment complaint, you must contact your agency's EEO Counselor within 45 days of the date of the alleged discriminatory act, event, or in the case of a personnel action. Additional information can be found online at http://www.ascr.usda.gov/complaint_filing_file.html.

To File a Program Complaint

If you wish to file a Civil Rights program complaint of discrimination, complete the USDA Program Discrimination Complaint Form, found online at http://www.ascr.usda.gov/complaint_filing_cust.html, or at any USDA office, or call (866) 632-9992 to request the form. You may also write a letter containing all of the information requested in the form. Send your completed complaint form or letter to us by mail at U.S. Department of Agriculture, Director, Office of Adjudication, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9419, by fax at (202) 690-7442, or email at program.intake@usda.gov.

Persons with Disabilities

Individuals who are deaf, hard of hearing or have speech disabilities and you wish to file either an EEO or program complaint please contact USDA through the Federal Relay Service at (800) 877-8339 or (800) 845-6136 (in Spanish).

Persons with disabilities, who wish to file a program complaint, please see information above on how to contact us by mail or by email. If you require alternative means of communication for program information (e.g., Braille, large print, audiotape, etc.), please contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

January 2013

NRCS

Natural Resources Conservation Service

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